GOVERNMENT OF ROMANIA

MINISTRY OF COMMUNICATIONS AND INFORMATION TECHNOLOGY

B-dul Libertăţii, nr. 14, sector 5, cod 70600, Bucureşti, tel.:+401 4001190, +401 3120021, fax: +401 3365887

NATIONAL STRATEGY

FOR THE NEW ECONOMY

AND THE IMPLEMENTATION OF

THE INFORMATION SOCIETY

- Abridged version -

- 2002 -

CONTENTS

1. INFORMATION SOCIETY AND NEW ECONOMY

Information Society (IS) represents a new stage of human civilisation, a superior life mode that implies the intensive use of information in all activities and human existence, with a major economic and social impact. Information Society permits a large access to information for his members, a new working mode and knowledge; it amplifies the possibility of the economic globalisation and of the increasing of the social cohesion.

The construction of the new society model determines a series of major **socio-political problems** - both at the national and international level - for attenuation of the exclusion phenomena from the benefits of the new technologies ("digital divide") of some social categories and of some geographical regions/areas; these problems also concern the social cohesion, the promotion and conservation of specific culture of each nation and local community, the protection of the citizen and consumer. They can be solved only by a **large dialogue** between the **governmental authorities, representatives of business sector, of academic environment and civil society**, at national, regional and global level.

The model of the future society - Information Society – has put in front of the European Union (EU) problems of maximum complexity and emergency: development of a new regulatory framework, promotion of a new culture and of the entrepreneurial spirit in business, obtaining of leadership in the new technologies of information and communications, citizen education and instruction, implementation of new business methods. In this context, the European Union, by its political and executive factors, has acted since 1993 through a series of strategic decisions and programmes, the most recent one being the strategic document **e-Europe - An Information Society for All**. European Commission has taken this initiative by adopting the document "E-Europe - an Information society for All" on 8 December 1999, which proposes the acceleration of the implementation of the digital technologies in Europe and the provision of the necessary competences for using them on large scale. This initiative has an important role on the agenda of economic-social renewing proposed by EU, representing at the same time the key element for the modernisation of the European economy, for the transition to the new knowledge-based economy in the view of 2010.

To implement these objectives, the action plan **e-Europe** (Feira, 2000) has been adopted; it was updated in 2002, at Seville (by the action plan e-Europe 2005). In the first plan, a series of actions are proposed in order to assure cheap, safe and fast access to Internet, to provide human resources able to develop and use the new technologies and to stimulate the use of the Internet at European level. The important progress of EU countries in the period 2000-2001 allowed the definition of a new action plan having as deadline the year 2005**. e-Europe 2005** is based on the technological progress in the field of broadband communications and of the multi-access platforms; at the same time, it stakes on the synergy between the broadband infrastructure development and Information and Communications Technology (ICT) and digital content services industry.

The ministerial Conference of the Central and Eastern European countries and of the European Community representatives (Warsaw, May 2000) decided the elaboration of an Action Plan **e-Europe+** for the candidate countries, in addition to the one of the EU countries, but with convergent objectives. e-Europe has been officially launched by the prime ministers of the candidate countries on the occasion of the European summit in Goteborg, 15-16 June 2001. Reaching the e-Europe+ objectives requires a sustained political commitment from the candidate countries, taking into account that Acquis implementation is not considered enough to make a progress towards the Information Society and to reduce the existing gaps among the EU countries.

2. INFORMATION SOCIETY IN ROMANIA

The Information Society is an objective of the development and not a desideratum in itself; it is an essential component of the politic and economic programme for development and a major condition for integration of Romania in the Euro-Atlantic structures. The transition to Information Society is one of the strategic objectives of the Romanian Government for the 2001-2004 period and one of the EU pre-adhering conditions.
Based on SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis concerning the Information Society in Romania, the following results were obtained:

Strengths

1. **The actual government policies in favour of the development of ICT and Information Society: the creation of the institutional framework** (setting up of

the Ministry of Communication and Information Technology, setting up of the Advanced Technologies, Communications, and Information Technology Commission at the level of the Romanian Parliament, setting up of the Information Technology Promotion Group), of the **regulatory framework** (adoption of a series of regulations specific to the field and in accordance with Acquis requirements), the **active presence of the Information and Communications Technology (ICT) field in international co-operation development, the promotion of some facilities for ICT development.**

2. **Resources and human potential** of high quality, recognised at the international level (general knowledge, creativity, foreign languages).

3. **Consolidation and enhancement of the ICT community** that can be noticed by a higher involvement of the companies, experts and professional associations in the transition towards the Information Society.

4. **Increased rates** of PC Acquisitions and increased number of mobile phone users during the last 2-3 years, comparable or superior to the candidate countries. The average development of ICT in Romania is of 15% in comparison with the world rate of 8%.

5. **The possibility of extending Internet access** due to the large number of TV cable subscribers (71%) and of the mobile telephony users.

6. **Consolidation of the telecommunications operator market** and development of a national infrastructure on optic fibre (16.500 km in 2001 and predicted 19.570 km. in 2002)

7. **Support granted by the state authorities for the investments in ICT field.**

Weaknesses

1. **Low level of the access** to the communications and Internet services, due to price policies and to the reduced level of the infrastructure investments.

2. **Low level of the Gross Domestic Product indicator**, that does not permit reaching high levels of endowment (hardware, software, communication devices) to assure services and applications specific to IS.

3. **Business environment has insufficient incentive** for using new information and communications technologies and for opening to e-business.

4. **Slow implementation of the legislation concerning copyright** in ICT field, with consequences on the level, still high, of software piracy.

5. **The average salary of ICT specialists** is reduced, in comparison with developed countries.

6. **The number of PCs and the penetration of the Internet in secondary and high schools are still maintained at a low level** in comparison with the average of the candidate countries.

7. **Penetration rate of public telephony system is under 20%** in comparison with an average of 36% for Central and Eastern European (CEE) countries, placing Romania last but one in the 2001statistics.

8. The number of **4.5 Internet users /100 inhabitants** in Romania at the end of 2001, in comparison with an average of 14.5 in CEE countries.

Opportunities

1. The existence of **a human, cultural potential** and of a **political decision** to leverage the opportunities offered by passing to the Information Society – a knowledge-based one - and to the new economy.

2. The possibility to assure a **sustainable economic growth**, based on the new technologies, by producing value-added products and services.

3**. Obtaining external funds** from the international organisms (mainly EU) for projects that will assure the modernisation of public administration, citizens' access to public information, development of business environment and life quality improvement.

4. **The possibility to attain the IS development pace** requested by the integration in EU, based on adopted action plans and policies (e-Europe 2002, e-Europe+, e-Europe2005).

5. Accelerated growth of the worldwide demand for ICT products and services.

Threats

1**. The job market in the field, in the developed countries**, leads to young specialists migration towards these countries.

2. **The reduced number of policies for the attraction of strategic partners and investors** (with capital, technology, market), to allow for the development of Romanian competence in the implementation of systems and complex software packages and for the development of information infrastructure, based on advanced technologies.

3**. The existing technological discrepancy in comparison with developed countries in the research and innovation field.**

3. THE INFORMATION AND COMMUNICATIONS TECHNOLOGIES AS AN ECONOMIC BRANCH

3.1. ICT Production in Romania

The transition towards the Information Society presumes the development of ICT field, which is of vital importance for the development of Romania. This field experienced a difficult process of adaptation and restructuring that evolved satisfactorily towards those market areas where we are competitive, for example, the software industry.

Between 1997 and 2001, the Romanian ICT industry produced computing, data transmission and telecommunications equipment, software and services with a positive growth rate - that reached 66% in 2001 in comparison with 1999 - reaching 2 billion EURO in 2001, according with to table given below:

Table: ICT Production in Romania **(million EURO)**

	1997	**1998**	**1999**	**2000**	**2001**
Computing equipment / Data transmission equipment	225	198	218	400	460
Semiconductors	7	13	14	15	16
Telecommunications equipment.	407	510	440	515	570
Other components / subsets	429	531	402	632	711
Office equipment	14	17	15	16	24

Measurement and control devices	88	81	81	122	132
Software and ICT services	50	60	100	150	200
Total	**1220**	**1410**	**1270**	**1850**	**2119**

Source: Ministry of Industry and Resources, 2001

The hardware manufacturers, that suffered a strong collapse after 1989, became again profitable by assembling equipment, with imported components, mainly from Asian sources. Production quality, efficiency of the assembling process, an intelligent design and an efficient management led to computing and data transmission equipment of high enough performance, that covered 48-50% of the Romanian market. Many firms received the ISO 9001 certificate for this kind of activity, producing about 50,000 PCs yearly.

System configuration, hardware sales, installation, training and service are taken over by a number of private integrator firms, which offer these services for software products as well. These firms have about 10-15 employees and a high turnover. This is due to the fact that these companies also carry out services for successful international firms.

The foreign firms in the field have an active presence in Romania, covering about 50% of the hardware equipment market, by means of local distributors/integrators.

Software industry witnesses a remarkable development, about 4800 firms having this declared activity. In the software and services area, a number of 15.000 employees was estimated in 1999, 17.600 employees in 2000 and over 25.000 employees in 2001. The entire number of Romanian specialists is continuously increasing because of the market growth. The software and services industry use highly qualified human resources, but it has to deal with the personnel turn - over (about 40% of the total number of employees) because of the emigration of specialists.

The software developed and the services provided are estimated at almost 150 million EURO in 2000 and over 200 million EURO in 2001. The software industry registered an exponential growth also because big corporations used cheap, high-skilled manpower from Romania to develop offshore software.

The elaboration of a specific legislation, the promotion of Romanian language user interfaces, the local administrative practices and the business environment contributed the development of this industry for native solutions as well.

All great international software companies are represented in Romania and are using the services of product distributors / developers in order to sell standard software. This is a market segment that occupies a significant part of the specialised ICT workforce. However, a highly qualified labour potential is left available to develop competitive, high technology products. **The development prospects of the Romanian software industry are certain.**

3.2. The Information and Communications Technology Market

In 2001, the ICT market was evaluated at 2627 million EURO and in 2002 it is estimated at 3078 million EURO, with a 17% increase rate, and having the following structure:

ICT Romanian market (mil. EURO)

No.	Products / Services			YEAR		
		1999	**2000**	**2001**	**2002***	**2003***
1.	**Computer Hardware**	**141**	**153**	**180**	**190**	**201**
	Server systems	33	32	38	44	49
	PCs and work stations/ other similar	108	120	142	146	152
2.	**Data transmission equipment**	**74**	**91**	**114**	**145**	**160**
	LAN Hardware	11	12	14	15	16
	Other data transmission equipment	63	79	100	130	144
3.	**Software and Services**	**58**	**76**	**90**	**105**	**121**
	Software products	28	34	42	50	56
	Software services	30	42	48	55	65
4.	**Telecommunications equipment** (PBX exchange, routing equipment etc)	**384**	**503**	**622**	**708**	**738**
5.	**Terminal equipment**	**153**	**193**	**215**	**208**	**208**
	Mobile telephone sets	86	115	128	109	106
	Other terminal equipment	67	87	87	99	102
6.	**Carrier services**	**943**	**1188**	**1472**	**1816**	**2158**
	Telephone services (including Internet and on-line services)	477	528	613	747	847
	Mobile telephone services	319	476	644	824	1030
	Services for leased lines and data switching	19	26	34	43	55
	CATV services	128	158	181	202	226
7.	**Office equipment**	**50**	**45**	**48**	**51**	**55**
	Office copiers	17	15	16	17	17
	Other office equipment	33	30	32	34	38
	TOTAL	**1729**	**2158**	**2627**	**3078**	**3481**

* Estimated values

The source: Electronic Year Book, European Information Technology Observatory - EITO, 2002

In 2001, the hardware market total value was of 180 million EURO, representing a 17% increase in comparison with 2000. In 2001, the standard software market was evaluated at 42 million EURO and the ICT services market was evaluated at 48 million EURO. For 2002, a 14-15% increase is estimated for this field, representing about 52 - 55 million EURO.

3.3. Estimation of the ICT market evolution in Romania

In Romania, the ICT market must be evaluated in a 3-4 years perspective, until 2004 / 2005, in order to define the orientations and strategic options associated with the action lines necessary to reach priority objectives concerning the development of this field.

In a general evaluation of the ICT market viewed as an industrial market, one must take into account the proportion of different consumer/user categories. In the developed countries, it is about 25% for industrial and financial-banking fields (together ≈ 50%), about 17% for trade and public sector fields (together ≈ 34%). In Romania, for 2001, the preliminary data concerning technical endowment and number of Internet users in enterprises with more than 50 employees, are presented below, as delivered by the National Institute of Statistics:

Activity	**Internet users (number)**		**Endowment on December 31, 2001 (number of servers and personal computers)**	
	1998	**2001**	**1998**	**2001**
Industry - Constructions	3774	30502	57383	101159
Trade	1085	7427	9171	21753
Services	4989	20214	27534	50153
Insurance and banks	1026	6034	29586	34620

The domestic market can be quantitatively analysed through the existent statistics, which include at the most the year 2001, and through possible development rhythms either at the medium level predicted for neighbouring and EU countries, or 2-3 times greater.

In 2001, the total amount of ICT expenses in CEE countries was about

9153 million EURO, with a maximum growth of about 19% in the services area. In Romania, the following levels and rates can be predicted for this indicator:

	ICT expenses as % of GDP in 2001	**ICT expenses / inhabitant (EURO)**			
		2001	**2002**	**2003**	**2004**
With an increase rate of 20%	1,3	19	22,8	27,4	32,9
With an increase rate of 50%	1,3	19	28,5	42,75	64,12

In 2001, the Romanian ICT market is evaluated (EITO-2002) at 2 627 million EURO and the Internet services market is evaluated at 37.2 million EURO, with a trend to reach 38 million EURO in 2002.

Assuming 20% and, respectively 50% annual growth rates the figures are the following:

(no. /1000 inhabitants)

Growth rate / **Indicators**	**20%**				**50%**			
	2001	**2002**	**2003**	**2004**	**2001**	**2002**	**2003**	**2004**
Registered Internet addresses (Web sites)	1,2	1,44	1,73	2,08	1,2	1,8	2,7	4,05
Internet users	33	39,6	47,52	57,03	33	49,5	74,25	111,4
PCs	39	46,8	56,16	67,4	39	58,5	87,75	131,6
Telephone lines	177	212,4	254,9	305,9	177	265,5	398,2	597,3
Mobile telephones	162	194,4	233,3	279,96	162	243	364,5	546,8

* The source: IDC, World Bank, ANISP, and Roland Berger Study.

With a 50% annual growth rate, in 2004, Romania can exceed the medium level predicted for CEE countries. In absolute values (thousands of PCs) the Romanian market can exceed the markets of the CEE countries, noting that these countries have a smaller number of inhabitants.

(thousands of PCs)

Year / Growth rate	2001	2002	2003	2004
20%	880	1056	1237,2	1485
50%	880	1056	1980	2970

For this indicator (Annual Growth Rate: 50%), in 2003, Romania can exceed as market size, the levels reached in 2002 by the Czech Republic and Hungary with Annual Growth Rate: 20%.

The Government projects launched in 2001, associated with the foreseen legal and regulatory framework and the economic growth for sectors that are big ICT consumers (industry, including SMEs, finances - banks, trade etc.) can ensure high catch-up speed for most of the indicators. It can be stated that electronic commerce will represent an important segment of domestic and international market; firm action and concrete steps are recquired to support and stimulate this field.

If one takes into consideration the data included in Yearbook of World Electronic and those provided by the Ministry of Industry and Resources for 2000 as well as the estimations for 2001, the following dimensions of the offer in ICT field can be evaluated:

ICT products and services (mil. EURO)

Year and growth rate / Products and services	2001	2002		2003		2004	
		20%	50%	20%	50%	20%	50%
Computing equipment	460	552	690	662,4	1035	794,9	1242
Active components	16	19,2	24	23,4	28,8	28	34,56
Telecommunications equipment	570	684	855	820,8	1282,5	984,9	1923,7
Components and subsystems	711	853,2	1066,5	1023,8	1605	1228,6	1867,4
Office equipment	24	28,8	36	34,56	54	41,5	81
Measure and control devices	132	396	198	475,2	297	570,2	445,5
Software and ICT services	200	240	300	288	450	345,6	675
TOTAL	**2119**	**2773,2**	**3169,5**	**3328,2**	**4752,3**	**3993,7**	**6269,16**

Taking into account a 50% annual growth rate and starting from the volume of products and services estimated in 2001 at 2 119 million EURO, in 2004 a total amount of 6 269 million EURO will be reached. For this domestic market size (about 6 300 million EURO) the value of exported products and services, especially in the applications and software fields, must be of minimum

3 000 million EURO (≈ 50%), in order to cover expenses made to develop the information and communications infrastructure and to train EU level specialists.

4.STRATEGIC ORIENTATIONS AND OPTIONS FOR THE DEVELOPMENT OF ICT SECTOR IN ROMANIA

4.1. Strategic options

4.1.1.Options for the hardware field

Hardware development can be hardly conceived in the absence of a strategic investor (that owns capital for equipment, advanced technologies, market) primarily motivated by a significant presence on a domestic market far from being saturated. In this field, some niches in the domestic / international market may be chosen for products possible to maintain through research – development – innovation at a high competitive level, for medium – long periods.
Another option for manufacturers would be their position as suppliers of certain components and subsystems with a high competitiveness level, also sustained by research – development – innovation activities.
As a conclusion, in this field, **the assembly production can continue,** using imported components and subsystems, for the domestic market and, possibly, with a non-significant export for complex products, while having an acceptable sub-supplier position for certain components and subsystems.

4.1.2. Options for the software field

In the software area, there is a special potential and there are targets that can be reached only through a realistic and pragmatic approach. Starting also from evaluations made by some foreign experts* on software industry in developing countries, one can recommend a few steps to follow, taking into account the market (domestic and international) and the type of activity required to satisfy the demand. Thus, four options can be defined:

A. On-demand services for the domestic market

---

*

- Richard Heeks & Mihaiela Grundey: "România, Hardware and Software Industry", 1998, IDPM-UK
- "Romania at the Cuting Edge of Information Technology", World Bank Groups, May 2000, Washington DC.
- Oportunități şi limitări în dezvoltarea economiei Internet în România. Roland Berger Strategy Consultants, Oct. 2000.

B. Complex software packages for the domestic market
C. On-demand services for the international market
D. Complex software packages for the international market

Based on these options, many strategies, with possible implementation scenarios, can be defined:

- ✓ **strategy oriented on the domestic market demand, based on options A and B;**
- ✓ **export oriented strategy, based on options C and D; it can also be useful for the domestic market, since both assume removal of existing national level obstacles.**

Thus, several action lines can be envisaged for the software industry, in the following priority order:

1. Strengthening the development of **on-demand services for the domestic market**, and competitive on this market;
2. Turning to the **export of services**, in various formulas, to raise awareness of the international market and to accumulate know-how;
3. Turning to the development of complex **software package for the domestic market**, which presumes the consolidation of the Romanian companies on the domestic market and the existence of highly trained professionals (still in deficit): analysts and designers of complex applications, project managers;
4. Turning to the development of complex **software packages for export** (at least for some niches of the international market); this is a more difficult approach, considering the competition on the international market and the high costs for the development and implementation of a complex software package.

It is to be noticed that for the first three action lines (1,2,3), there is already a positive experience in the country, which must be stimulated and generalized, including by the creation of software scientific and technological parks in big cities and university centres, in order to keep in the country and to capitalize on the young generation of professionals.

4.2. Strategies and government policies concerning the development of the ICT sector

From the point of view of the strategy and the government policy, for both hardware and software there are several supporting scenarios, with as many paths to follow:

a) **The** centralized economy type **scenario based on "supplanting" actions;**
b) **The scenario based on passive actions ("laisser faire")** to **follow-up** on the evolution of the respective domains; it can be called scenario of "the minimal state" (from the state intervention point of view);
c) **The scenario based on promotional, supportive and motivating actions to reach the targets, using market mechanisms**; it can be called scenario of "the promotional state".

The path of the "supplanting" scenario is unacceptable in view of the new orientation of the country, while the path of the "minimal state" scenario would mean disregarding the national interest, Romania being in a position to do what the most liberal economies didn't do; since '50-'60, they have supported the ICT domain with important funds, by special programmes and they have encouraged the research and development in universities and companies. The path of the "minimal state", actually experimented in Romania after 1990, would be equivalent to accept being left behind. So, the only path to take is that of the "promotional state", able to capitalize on what the state and the market can offer in an as short a period of time as possible.
To follow this path, one must start from a correct / objective evaluation of the status of the indicators that define the Information Society and promotional steps must be taken at the level of the qualified factors (Government, Parliament, Professional and Patronage Associations) for the development of the economic sectors which are based on ICT. This can be done by:

- providing for a national informational infrastructure at the level of the developed countries
- stimulating investments in the ICT domain;
- providing for training and qualifications as required by the strategic options in the software field;
- stimulating research and development in order to sustain export and international cooperation in ICT;
- conducting ICT market studies;
- promotional actions on the foreign market;

- enforcing intellectual property rights and reducing software piracy;
- supporting local companies that supply ICT products and services and encouraging partnerships that facilitate know-how transfer;
- promoting the restructuring and privatization of the ICT state-owned companies and the creation of scientific and technological parks for this domain;
- providing the legal framework and the regulations required by the use of ICT and by the development of IS.

Under these circumstances, and taking into consideration the character of the promotional interventions presented above, some orientations can be defined which, in their turn, generate actions and projects, with responsibilities, resources, follow-up and evaluation indicators, mainly regarding:

- *the development of the informational infrastructure* at an accelerated rate, but associated with the accomplishment of the conditions to leverage the infrastructure through value-added services that motivate investments, especially if they come from the state or they have governmental guaranties;
- *the completion and the consolidation of the legislative framework and of the regulations specific of ICT* and of the impact of these technologies in the social-economic development;
- *the stimulation of the domestic market demand* coming from the business environment, from the public sector (through aggregate demand) and from the family/person level, in parallel with *the encouragement of the export and penetration on the international market*, including in partnership with well known companies that have capital, modern technologies and market opening;
- *guide training of specialists* in order to allow their rapid involvement in the development of ICT products and services on the upper levels of the added value hierarchy (the specification-conception-design phases). This will save extra costs and loss of time for the Romanian companies in terms of nowadays competition.

The globalisation and the rough competition impose the development of products and services at the level of existing standards on the international/global market, and especially on the EU domestic market. This can be assured only by **maintaining and developing a research-development-innovation capacity** sustained by an active technological transfer towards the manufacturers of goods and services.

5. IMPORTANT OBJECTIVES AND ACTION LINES

The main directions of the strategy for the development of the Information Society in Romania are defined on the basis of the principle according to which this society is created to the benefit of the citizen, and so it must fulfill the following demands:

- ✓ Provide access to information and knowledge
- ✓ Increase human capacity through education and training
- ✓ Create a favorable environment (including the legal framework) for developing regulations and general policies
- ✓ Promote universal service at an affordable price
- ✓ Improve security of the information at the global level and on the communication networks

This way, the following outcome can be obtained:

1) **Consolidation of democracy and of the state institutions** through the involvement of citizens in the political life and by facilitating the undiscriminating access to public information, by the improvement of the quality of public services and the modernisation of the public administration (e-government, e-administration);

2) **Development of the market economy and the progressive transition towards the new economy** - the increased competitiveness of the business environment and the creation of new jobs in the high technology sectors through the development of electronic commerce, teleworking, of new methods of business, financial and human resources management, management, the integration of ICT facilities in new products and services, the development of the ICT sector.

3) **Improvement of the quality of life** due to the use of the new technologies in areas like: social protection, health care, education, environmental protection and monitoring of the disasters, transport security, etc.; this way, goals such as **integration in the Euro-Atlantic structures** and in the Global Information Society can also be reached.

   In order to accomplish these objectives, the following actions are proposed:

5.1. Consolidate the National Information Infrastructure and the ICT Industry

a) Supply Communication Services on a Large Scale

No.	Action	Coordinator(s)	Period
1	Promote and sustain an open and competitive market for the communications services, that can ensure quality at advantageous, coherent and affordable prices	Specialised ministries ANRC, Private sector	Continuous action
2	Develop new technologies and services of the information society	Specialised ministries, ANRC, Private sector	2001-2007
3	Accelerate and accomplish full liberalisation of the telecommunications sector	Specialised ministries, ANRC, Private sector	2001-2003
4	Accelerate the development of the public telephony network by ensuring an annual rate of 500,000 new telephone subscribers.	MCTI, ANRC, Private sector	2001-2004
5	Provide universal telephony service by implementing telephony networks in places with a population larger than 1,000 persons	MCTI, ANRC, Private sector	2002-2004
6	Provide the availability of affordable basic telephony service capable to allow Internet access	MCTI, ANRC, Private sector	2001-2004
7	Create public centers for accessing Internet and multimedia resources, with special focus on the less favoured areas	MCTI, MAP, MEC, Private sector	2002-2004

b) Develop the National ICT Products and Services Industry

No.	Action	Coordinator(s)	Period
1	Restructure the ICT state-owned companies and develop new ones.	MIR MCTI, APAPS, MIMMC	2001 – 2004

2	Create scientific and technological parks and business incubators/industrial parks	MCTI, MIR, MFP, MDP, Private sector	2001 – 2004
3	Set up policies for the accomplishment of national level projects, in order to develop the national ICT industry	GPTI, Specialised ministries	2002 - 2003
4	Set up fiscal policies and regulatory framework to sustain the development of ICT sector	MCTI, MFP	2001 – 2004
5	Stimulate strategic partnerships for national information society projects	MCTI, Foreign Investors Agency	2001 - 2004
6	Restructure training of ICT human resources at all levels	MEC, MCTI	2002 – 2004
7	Develop research according to the ICT sector development requirements	MEC, MCTI	2002 – 2004

5.2. Ensure a Large Scale Access to the Internet Services

c) Cheaper and Faster Internet Access

No.	Action	Coordinator(s)	Period
1	Create a competitive framework for providing Internet access services, in order to obtain significant price reductions	MCTI, ANRC, Private sector	2001-2004
2	Introduce and stimulate competition in local access networks	MCTI, ANRC, Private sector	2002-2004
3	Develop the high speed data, voice and image communication infrastructure, to support the achievement of the information society	MCTI, ANRC, Public operators of data transport services, Content and Internet service providers, Professional associations	2002-2007
4	Carry out pilot projects in geographically isolated areas, in order to ensure access to information	MCTI, MAP, MFP, MEC	2002 - 2007
5	Increase the technical performances of the Romanian products and ensure the security of the data communication systems	MCTI, MIR, Content and Internet service providers, Professional associations	2002-2007
6	Set up an IPv6 experimenting pilot project	MCTI, MEC, Private sector	2002-2004

7	Create a competitive framework for supplying leased lines to significantly reduce prices	MCTI, Public operators of data transport services, ANRC	2002-2004
8	Introduce digital television services, including Internet facilities	MCTI, ANRC, Private sector	2002 - 2010
9	Promote the interoperability and the standardisation of the information transport infrastructure	MCTI, ANRC, Private sector	2002 – 2004
10	Develop alternative communication networks and interconnect them for data transmission	Specialised ministries, Private sector	2001 – 2007

d) Develop High Speed Networks for Research and Education

No.	Action	Coordinator(s)	Period
1	Launch research programmes concerning the technologies of the Information Society	MEC, MCTI	2001 - 2004
2	Participate in research networks, virtual laboratories/teams, virtual institutes	MEC, MCTI	2002 - 2004
3	Develop and implement optic fiber metropolitan networks in big cities, to connect the research institutes and universities to the national network of research and development, education and academia.	MEC, MCTI, Romanian Academy, Private sector	2002-2007
4	Set up a national level communication network for the national research and development, education and academia network	MEC, MCTI, Romanian Academy, Private Sector	2002-2007
5	Increase the performance of the national research, development and education network in order to establish virtual teams (GRID)	MEC	2002 - 2004
6	Set up a technological support sub programme dedicated to high technology activities for SMEs	MIMMC, MEC	2002 - 2004
7	Set up a network of ICT research laboratories	MEC, Private Sector	2002 - 2004
8	Set up Internet accessible virtual centres for technological support of SMEs	MEC, MIMMC, MCTI, Private Sector	2002 - 2004
9	Set up of database for Romanian research	MEC	2002-2003
10	Promote the use of ICT in education, research and cultural institutions	MEC, MCTI, MCC	2002 - 2007
11	Increase performance of the national research and development and education networks and connect them to the GEANT European research network	MCTI, MEC, Romanian Academy, Private Sector	2002 - 2004

12	Set up university campus networks provided with multimedia communication capacity and integrate a Romanian efficient network in an European virtual campus	MEC	2002-2007

5.3. Education and preparing of the human resources for Information Society

e) Education and training of young people for Information Society

No.	Action	Coordinator(s)	Period
1	Introduce computer-aided education systems in schools in accordance with modern IT-oriented international standards Provide all school teachers and students with convenient access to IT resources, by organising turn-key computer laboratories endowed with local servers, communication equipment, Internet, software, and multimedia educational content All Romanian high schools will be fully equipped by the first semester of 2003.	MEC, MCTI, Private Sector	2002 - 2010
2	Ensure Internet availability of educational services and resources, as well as e-learning platforms, for teachers, pupils and parents (e.g. access for disadvantaged children, access to digitised cultural heritage, multilingual multimedia learning materials, and selection of best practices).	MEC, MCTI, Private Sector	2002 - 2004
3	Participate in European Union programmes on education, training, culture and Information Society	MEC, MCTI, Private Sector	2003 - 2007
4	Provide training to all teachers, and adapt teacher curricula to use ICT new technologies for developing innovative, practical teaching methods	MEC, Private Sector	2002 - 2007

5	Adapt school curricula by integrating new learning methods based on information and communication technologies. Regulate the way information technology is used in the education system	MEC	2002 – 2004
6	Implement pilot projects, interchange best practices and co-ordinate research efforts via participation in European Union Programmes concerning IS and education	MEC, MCTI, MIE, Private Sector	2002 – 2007
7	Foster development of applications and electronic educational content for primary and secondary education. Create a market for electronic educational products. Encourage organisation of contests for pupils to stimulate their crativity	MEC	2002-2010

f) Working in a knowledge-based economy

No.	Action	Coordinator(s)	Period
1	Develop ICT literacy via ongoing education	MEC, Private Sector	2002 - 2010
2	Significantly increase the number of ICT training centres and courses	MMSS, Private Sector	2002 - 2010
3	Provide for better job management by using telework and part-time working, in agreement with the social partners	MMSS, Private Sector	2002 - 2010
4	Promote the development of a network of learning and training centres for demand-driven ICT training and retraining of postgraduates	MEC, MMSS, Private Sector	2002 - 2010
5	Set up Internet access points in public spaces and/or create multimedia tele-centres in local communities to provide access to the Internet and computer working facilities	MAP, MCTI, Private Sector	2002 - 2010

g) Enable access for all to Information Society specific services

No.	Action	Coordinator(s)	Period
1	Special measures to adopt the standards for accessibility of information technology products (“Design for all”), in particular to improve the employability and social inclusion of people with special needs	MCTI, MIE, MAP, Private Sector, Standardisation bodies	2002 - 2010
2	Review relevant legislation and standards to ensure conformity with the principle of accessibility	MCTI, MIE, MJ, Standardisation bodies	2003 - 2004
3	Adoption of the Web Accessibility Initiative (WAI) guidelines for public websites	MCTI, MAP, MIP	2002 - 2003
4	Ensure the establishment and network connection of national “Design-for-all” centres of excellence	MCTI, MEC, MAP, MIMMC, Private Sector	2002 - 2004

5.4. Stimulate the implementation and use of Information Society specific services

h) Accelerating e-commerce

No.	Action	Coordinator(s)	Period
1	Finalise and adopt regulatory and institutional frameworks specific to e-commerce, in accordance to community Acquis and EU regulations (electronic signature, electronic commerce…)	MCTI, Specialised Ministries, Private sector	2001-2003
2	Propose facilities to promote ICT investments and e-commerce adoption by companies	MCTI, MFP, Private sector	2002-2007
3	Organise e-commerce promotional actions and support SMEs in implementing and maintaining a portal (website) to promote digital economy (e-business, e-commerce)	MCTI, MIMMC, Private sector	2001-2004
4	Extend and improve electronic payment in the financial and banking system	MFP, National Association of Banks, MCTI	2002-2007
5	Establish the regulatory framework to prevent fraud and unauthorized access to information	MCTI, MI, MJ, OPC, Private sector	2002- 2004
6	Use e-commerce in public procurement	MCTI, MFP, other ministries and institutions from the public administration	2001 (pilot project) 2002 - 2004 (generalisation)
7	Continue governmental support for e-commerce pilot projects and their generalisation (virtual market, e-public procurement, national network for ICT services, B2B solution for custom services, Cyber Centre, etc)	GPTI	2001 (pilot projects) 2002-2005 (generalisation)

i) Government on-line: electronic access to public services

No.	Action	Coordinator(s)	Period
1	Establish the necessary infrastructure for the use of ICT solutions in public administration: implement a governmental extranet to interconnect the central and local administration bodies; provide interoperability between regional networks and the unique central administration network	MAP, MCTI, SGG, Private sector	2003 (Central administration) 2002-2003 (national network)
2	Implement portals to provide information at the central administration level, based on preliminary actions for the design and implementation of archives and databases including relevant information for citizens and businesses as well as regulations concerning the way to create and use public administration portals. The first portal will be the one for legal regulations.	MAP, MJ, MCTI, MEC, other ministries	2002 (Legal Unique Portal, Educational Portal SEI)
3	Develop an interactive website system at central administration level	MAP, MCTI, other ministries	2002 - 2004
4	Create portals for services to be used by citizens and businesses based on electronic signature and electronic cards for user identification	MAP, MFP, MMSS, MCTI, other ministries	2002 - 2004
5	Implement info kiosks in public places to provide information regarding legislation, local cultural events, environment conditions, etc. -pilot project -extension in all the cities with more than 20,000 habitants.	MCTI, MAP, professional associations	2001 - 2007 2001 2002 - 2007
6	ICT solutions for services provided by local public administrations interconnected in regional networks	MAP, local public administration	2002- 2004
7	Integrate town hall registers: certification services, creation and administration of a civil status registration index, set-up of a service for civil status event notification	MAP, local public administration	2002-2004
8	Create and manage Property Registers and related services for the citizens, businesses, technicians, experts, bankers, notary public by interactive data exchanges between property registers and local administrations (municipalities)	MAP, MFP, local public administration	2003-2004
9	Provide data consistency of the national interest registries (unique coding and identification of the composing entities, of	MCTI, MAP, MI, MFP, MJ, National Office	2002 - 2004

	data collection and update channels, definition of data interconnections and of data validation procedures, unified rules for access and security)	of Cadastral Survey, other ministries	
10	Promote the use of electronic signature for public administration services	MAP, MCTI, other ministries, local administration	2002 - 2003
11	Experiment and generalise the electronic ID card	MAP, local administration	2003 - 2004
12	Introduce and integrate electronic document management systems in central and local public administration (counties and big cities)	MAP, other ministries, local administration from big regions and municipalities	2002 - 2007
13	Prepare, launch and generalise the electronic system for public procurement (e-procurement)	MCTI	2001 - 2004
14	Train civil servants to efficiently use new technologies including through distance learning	MAP, MCTI, public administration, training laboratory	2002 - 2004
15	Organise training courses for ICT infrastructure managers, for record management personnel and for the staff working directly with the public.	MAP, MCTI, MIMMC, private sector	2002 - 2004
16	Elaborate the legal framework for concession of the administration and access to public databases	MCTI, MJ, MAP	2003 - 2004
17	Continue governmental support for e-government projects, in accordance with EU recommendations	GPTI, MCTI, Specialised ministries	2001 (pilot projects) 2004-2005 (generalisation)
18	Identify and evaluate websites and electronic interfaces already in use by governmental institutions	MCTI, MAP, MIP	2002-2003
19	Define and adopt a standard for the design of electronic interfaces to be used by the public interacting with governmental institutions	MCTI, MAP, MIP,	2002-2003
20	Set up a central government portal to enable interaction with governmental institutions	MCTI, DAIS, MAP	2002-2004
21	Define an interoperability standard for information exchange between public institutions	MCTI, MAP, MIP, MI	2002-2003
22	Design and implement information	MCTI, MAP, MI	2002-2005

	systems to electronically provide the 12 basic public services for the citizens (EC recommendations)		
23	Design and implement information systems to electronically provide the 8 basic public services for businesses (EC recommendations)	MCTI, MFP	2002-2005
24	Implement call centres	MCTI, MAP, MIP	2003-2005

j) ICT based medical services

No.	Action	Coordinator(s)	Period
1	Design and implement the information system of the National Health Insurance Office	MSF, CNAS	2002-2006
2	Set up the extranet of health care organisations by accessing the high speed networks: -connect university hospitals and out-patient clinics, -connect municipal emergency hospitals, -connect other regional hospitals and out-patient clinics, -connect health care centres located in villages;	MSF, CNAS, health institutions	2002-2006 2003 2002 - 2004 2000 - 2007
3	Develop new computer-aided health care services; make use a smart cards in health care;	MSF, health institutions, private sector, research units	2001-2004
4	Create an index for medical services and for providers of such services (hospitals, clinics, laboratories, emergency services, pharmacies, doctors, etc.)	MSF, health institutions, private sector, research units	2001- 2004
5	Develop websites with information on preventive health care and sanitary education, in accordance with EU quality criteria, and integrate them internationally	MSF, CNAS, health institutions, research units	2003

k) Stimulation of information generation and knowledge dissemination by electronic means

No.	Actions	Coordinator(s)	Period
1	Digitise cultural collections from libraries, archives, museums to make them widely accessible -connect the University Libraries to the Internet high speed network -create websites for libraries, museums, theatres and others cultural units -connect to the Internet municipal libraries and museums -connect other libraries and museums -connecting theatres and others cultural units	MCC, MEC, Romanian Academy, Private Sector	2002 - 2006
2	Enhance cooperation between education and culture institutions and the content industry	MCC, MEC, MCTI, professional associations	2002 - 2006
3	Develop and generalise the government pilot projects dedicated to cultural information dissemination and facilitate access to culture and cultural institutions	MCC, MCTI	2001 - 2006
4	Create an information culture by raising awareness of the cultural environment regarding the advantages of using information society technologies	MCC, MEC, MCTI, Romanian Academy	2001 - 2004

5.5. Network security, ICT anti-fraud and the smart cards promotion

No.	Actions	Coordinator(s)	Period
Evaluate information system security on institution, regional and national level			
1	Promote information system auditing including: - definition of security profiles - analysis of attacks and outside penetration - analysis of internal security	MCTI, MAP, Institutions from the National Defence System	2002 - 2010
Anti-fraud methods to prevent and fight electronic crime			
2	Implement security policies against the hacker-cracker type attacks; implement	MCTI, MI, MJ	2002 - 2010

	methods to restore the affected information system; legal provisions to punish electronic crimes;		
3	Develop antivirus software, specialised in preventing and fighting against the viral attacks on computer networks; create a portal on information security.	Research Institutes, Software Industry	2002 - 2010
4	Promoting measures to fight against electronic crime	MCTI, MJ, Institutions from the National Defence System	2002 - 2010
5	Implement programs to fight against attacks on mobile and fixed communication networks	MCTI, Institution from the National Defence System; Private Sector	2002 - 2010
6	Provide for the security of electronic payment systems: speed, privacy, confidentiality, decentralised and international approach • electronic transfer of funds • electronic money • e-cash	MCTI, MI, MFP	2002-2010
7	Promoting the “smart card” for secure electronic access to medical services, to electronic payment services, mobile Internet, public transport services, public telephony	MSF, CNAS, MCTI, MFP, National Association of Banks	2002-2006
8	Promote the smart card for electronic payment of civil servants’ salaries and for electronic tax payment	MCTI, MFP, MMSS	2001-2004
The modern concept of information security policies			
9	Conduct analyses regarding types of attacks on information systems: classification of the attack types; adoption of measures to avoid, counteract the effects and remove the consequences of different types of attacks	MCTI, INSSE, MI, Private Sector	2002 - 2010
10	Determine the vulnerability of the networks, estimate threats to system security and develop protection methods.	MCTI, Institutions from the National Defence System	2002 - 2010
11	Promote a modern management of the network security risks and of the procedures to recover after disaster.	MCTI, MI, Private Sector	2002-2010
12	Develop programs to implement security policies on local, regional and	Research Institutes, Private Sector	2002-2010

	national level.		
13	Introduce cryptography and security technologies in central and local public administrations	MCTI, MAP (Ministry of Public Administration), City-Halls, Prefectures	2002-2010
14	Promote and support the security of Internet services: protocols, security architecture, security of services, authentication servers, the e-mail and web security.	MCTI, MI (Ministry of Internal Affairs), Private Sector	2002-2010
15	Develop protection systems for data on the local and national networks, by using encryption and by filtering access to network nodes.	MCTI, MAP, Institutions from the National Defence System, Private Sector	2002-2010
16	Elaborate and adapt system security policies concerning access to information systems.	MCTI, MI, MJ (Ministry of Justice), Private Sector	2002-2010
17	Set up partnerships with International Organisations and Institutions involved in the prevention and fight against cyber-crimes.	MCTI, MI, MJ, Institutions from the National Defence System, Private Sector	2002-2010
18	Set up security policies for the networks of major public or private companies, in order to prevent leakage of confidential information: insurance companies, fixed and mobile telephony operators, TV operators, Internet service providers, etc.	MCTI, MIR (Ministry of Industry and Resources), Institutions from the National Defence System, Private Sector	2002-2010
19	Regulate the security system of electronic archives.	MCTI, MI, MJ	2002-2010
20	Develop training programs for experts in information systems security.	MCTI, MEC, MAP, Private Sector	2002-2010

6. LEGAL AND INSTITUTIONAL FRAMEWORK

6.1. Legal Framework

An important objective of the strategy is to **transpose and implement the EU Acquis regarding the Information Society.**

From a legislative point of view, progress has been made in the implementation of the EU Acquis. A number of laws and regulations have been elaborated and approved, which represent transpositions of the EU directives and decisions. Romania accepted the nr. 4 Protocol to the General Agreement for services trade by which the liberalisation of telecommunications networks and services was adopted, including an implementation calendar for this process.

There is a large number of services which are already liberalised, such as data transmission and Internet service providing, added-value services, mobile telephony services, cable-TV network installation and operation, etc. The last restrictions regarding vocal telephony and leased-line providers will be removed starting on 1 January 2003; at that moment, the market of telecommunications services and networks will be fully liberalised.
In 2001-2002, a series of laws were adopted in order to liberalise and foster the development of the ICT sector and also to develop the Information Society specific services in response to citizens' needs and requirements.

The following objectives were aimed at:

1. **Regulatory framework and development of the infrastructure and communication services:**
OG 79/2002 regarding the general regulatory framework in communications; **OG 527/ 2002** regarding the access to electronic communication public networks their associated infrastructure, and their interconnectivity; **OG 18/ 2002** regarding the operation of the unique national system for emergency calls.

2. **Development of electronic commerce: Law 455/ 18.07.2001** regarding digital signature. Methodology norms for the implementation of digital signature law; **Law 483/5.07.2002** regarding e-commerce. Methodology norms for the implementation of the e-commerce law (project).

3**. Services for the citizens and the business environment**
For the development and generalisation of applications able to contribute to the improvement and simplification of the relations between citizens and businesses on one hand and public administration on the other, the following laws were adopted**: Law 468/2002** for approval of **OG 20/2002** regarding public procurement by electronic auction, **Law 291/ 2002** for approval of **OG 24/2002** regarding local tax payment by electronic means.

4. **Building a safer Information Society**
The new information technologies have their own vulnerable points, with important social and economic consequences. In accordance with EU initiatives, steps have to be taken to prevent and fight against cyber crime.
A number of laws have been adopted: **Law 677/2001** for the protection of individuals with respect to personal data processing and free circulation. In the elaboration of this law, EU directives 95/46/EC and 97/66/EC were consulted;

Law 676/2001 regarding personal data processing and privacy protection in telecommunications.
In the future, the illegal character of the content has also to be dealt with, in accordance with EU regulations. The problem of unauthorized access to private networks, the hackers' attacks, the spreading of computer viruses, the commercial frauds were handled in **Law 483/5.07.2002** regarding e-commerce.

5. **Providing Internet access for senior people and for persons with disabilities**
In accordance with EU initiatives (WAI-DA European Commission program) some regulations are being prepared in order to improve the Internet access for senior people and persons with disabilities.

6. **Development of other Information Society** specific **services**

In this area, the following actions will be initiated:

- ✓ elaboration of standards regarding distance learning,
- ✓ regulation on the use of smart cards in health care, education, tax payment, etc.,
- ✓ support for the development of a deontological code for Internet Service Providers,
- ✓ development of technical regulations for e-Government applications which observe international standards and regulation systems **(ISO, UE, ETSI, etc**) regarding system architecture and interconnectivity, exchange of information,
- ✓ elaboration of the legal and regulatory frameworks for electronic payment and electronic money

7. **Sectorial restructuring and support for investments in ICT**

This topic covers the following:

- ✓ The Government decision regarding the strategy for the privatisation of ICT state-owned companies from the **APAPS** portfolio. The privatisation of these companies will take place by selling their shares exclusively to strategic ICT investors. The buyers, and their successors must preserve the ICT company profile for at least 5 years.
- ✓ Setting up of the legal framework for the privatisation of the state-owned companies and definition of a coherent privatisation strategy, including

sanctions for discarding ICT as main area of activity of the privatised company. ICT companies and other SMEs also benefit from facilities regarding customs duty exemption, profit taxation, export stimulation, credits, etc.

- ✓ Investments in ICT also take advantage of the general legislation in force, regarding the less-favoured regions, the industrial and technological parks.

In addition, the following actions are proposed:

No.	Action	Coordinator(s)	Period
1	Continue to transpose and implement the Acquis provisions relevant to the Information Society	Parliament, Government, Private Sector	2001-2004
2	Transpose and implement the new EU regulatory package for communication services	Government, MCTI	2003
3	Develop a legal framework to enable free circulation of information	Government, MCTI	2001-2002
4	Define the juridical status of the electronic document, of the digital signature, of electronic data bases, e-commerce, electronic money and payment	Government, MCTI, Private Sector	2002-2003
5	Set up the legal and institutional framework for the fight against cyber-crime and unauthorized access to electronic content.	MCTI, MJ, Private Sector	2002-2003
6	Produce regulations regarding restrictive network access for illegal information (pornography, money laundering, terrorist attacks, etc.)	MCTI, MCC, Private Sector	2001-2004
7	Produce new regulations to implement the universal service in telecommunications	MCTI, ANRC	2002-2003
8	Elaborate and enforce legislation regarding personal data protection: -protection of individuals against personal data processing and transmission -free access to information and communication, including via Internet, in accordance with legal deontological and professional regulations regarding the informational access in social environment.	MCTI, MJ	2001-2003
9	Elaborate and implement the legal framework and provide the institutional framework addressing the protection and security of computer networks, information systems and anti-fraud in ICT		2001-2004
	-audit and assess current legislation on information systems security by	MCTI,	

	establishing regulatory requirements for the development of cyber-crime casuistry as well as by setting up the steps to be taken in order to harmonize with the European legislation and NATO norms; adopt pre-accession criteria -adopt parliamentary bills related to information systems security -promote and enforce regulations in the domain of copyright, software piracy, software program copying and illegal distribution	Institutions from the National Defence System MCTI, BSA, ORDA	

The high dynamics of the ICT domain implies recurrent reconsideration and upgrading of this action plan

6.2. The Institutional framework

GPTI (The Romanian IT Promotion Group) was set up by Government Decision no. 271/2001

The IT Promotion Group is composed of: Prime minister – President of the Group; Minister of Public Finances; Minister of Public Administration; Minister for the coordination of the General Secretariat of the Government; Minister of Education and Research; Minister of Communications and Information Technology, Minister Commissioned with the Research sector; State Secretary with the Ministry of Communications and Information Technology - Secretary

The IT Promotion Group has the following responsibilities:

a) to establish strategic trends for the transition to the Information Society in Romania
b) to approve strategic planning projects and their respective annual budgets in the domain of communications and information technology, for public institutions as defined by the Law no. 72/1996 regarding public finances, for national companies and for businesses where the state is the major stockholder
c) to approve and coordinate ICT projects bigger than 100 000 EURO, for public institutions, as defined by the Law no. 72/1996
d) to approve ICT projects bigger than 100 000 EURO which benefit national companies or businesses where the state holds a majority of stock
e) to approve the ICT projects which require a government guarantee.

To make the institutional framework complete, the following institutions have been set up in 2002:

- ✓ The General Inspectorate for Communications and Information Technology (Government Decision no. 180/2002)
- ✓ The Supervising Commission for the operation of the public procurement electronic system (Government Decision no. 179/2002)
- ✓ The National Authority for the Regulation in Communications (Emergency Ordinance no. 79/2002)

6.3. Resource Providing

In order to foster the development and implementation of the Information Society, certain financial resources will be allocated both for research-innovation and pilot project implementation

No.	Action	Coordinator(s)	Period
1	Financing a national research & development program for the development of the Information Society	Ministry of Education and Research (MEC)	2001-2004
2	Launching and financing pilot projects for general interest topics (e-Europe)	MCTI, MEC	2001-2004
3	Launching and financing priority projects of national interest for the development of the infrastructure and of applications with a socio-economic impact	MCTI, MEC	2001-2004

These projects will be open both to the state-owned and private companies. Meanwhile, the drawing of external sources of funds is to be fostered as well as the participation of the Romanian experts in international projects such as:

- ✓ The EU programme “e-Content”
- ✓ The EU programme Information Society Technologies (IST)
- ✓ The EU programme “Interchange of Data Between Administrations” (IDA)
- ✓ The EU programme “Safer Internet Action Plan”

In this domain, an important objective is to double each year the number of projects financed by the European Commission, along with attracting of funds and also providing these projects with suitable preparation and management.

Other programmes:
The projects related to Information Society may receive funding from other programmes that belong to international institutions such as: World Bank, USAID, UNDP and NATO if they are motivated and presented according to these institutions' regulations.

6.4. Follow-up, evaluation and reporting procedures

The follow-up of the accomplishment of the proposed actions will be performed on the basis of several indicators recommended by the action plan e-Europe+ according to the following table:

Indicators regarding large-scale supply of communication services	Percentage of households that have fixed telephone services Percentage of households that have some form of telecommunications that is capable of providing access to the Internet Interconnection prices Check list of issues such as portability; licensing agreement; etc
Indicators regarding the development of the national industry of ICT products and services	Revenue within ICT; Number of businesses and employees Revenue structure on types of activity Human resources and annual income per employee Application areas of Romanian ICT products and services
Indicators regarding cheaper and faster Internet	Percentage of population who regularly use the Internet Percentage of households with Internet access at home Internet access costs
Indicators regarding the development of high speed networks for research and education	Speed of interconnections and services available between and within national research and education networks (NREN's) with EU Number of researchers who have access to the Internet Percentage of the researchers who have access to the Internet Number of computers with direct access to the Internet for every 100 researchers

	Percentage of researchers who have access to the Internet at home Number of research institutes with high-speed connection to the Internet.
Indicators regarding secure networks and smart cards	Number of secure servers per million inhabitants and per total number of sources Percentage of Internet-using public that have experienced security problems. Auditing: indicators relating to the types of the attacks, their number and counter attack measures Indicators related to cyber piracy
Indicators regarding training of youth for the Information Society	Number of computers per 100 pupils in primary/secondary/tertiary levels Number of computers connected to the Internet per 100 pupils in primary/secondary/tertiary levels Numbers of computers with high speed connections to the Internet per 100 pupils in primary/secondary/tertiary levels Percentage of teachers using the Internet for non-computing teaching on a regular basis
Indicators regarding working in the knowledge-based economy	Percentage of workforce with (at least) basic IT training Number of places and graduates in ICT related third level education Percentage of workforce using telework
Indicators regarding undiscriminating access to information society specific services	Number of Public Internet Points (PIAP) per 1000 inhabitants Percentage of central government websites that conform to the WAI accessibility guidelines at level A
Indicators regarding e-commerce	Percentage of companies that buy and sell over the Internet
Indicators regarding e-Government	Percentage of basic public services available on-line Public use of government on-line services – for information / for submission of forms Percentage of public procurement which can be carried out on-line
Indicators regarding e-health (health online)	Percentage of health professionals with Internet access Use of different categories of web content by health professionals The number of health care units that have direct access to the Internet

Indicators regarding stimulation of information and knowledge dissemination (digital content)	Percentage of websites in the national top 50 visited
Indicators regarding implementation of the community Acquis	List containing the most important adopted legislation of the Acquis concerning the Information Society

The strategy was elaborated in the Ministry of Communications and Information Technology and it was discussed with representatives of the ministries, of ICT professional associations, with teaching staff, researchers and decision makers from the central public administration. The strategy has also taken into consideration studies and analyses conducted in various sectors of activity.

The elaboration and editing group was formed by:

- experts from the Ministry of Communications and Information Technology coordinated by **Adriana Țicău** - State Secretary

- experts from the National Research Institute for R&D in Informatics coordinated by Prof. **Doina Banciu** - General Director

- experts from the academic environment

  Prof. Marius Guran
  Prof. Florin Filip

GLOSSARY OF ROMANIAN INSTITUTIONS

The Romanian commonly used acronym is given first, followed by the English name.

- **MCTI** - Ministry of Communications and Information Technology
- **MEC** - Ministry of Education and Research
- **MIMMC** - Ministry of Small and Medium-Sized Enterprises and Cooperation
- **MCC** - Ministry of Culture and the Denominations
- **MIE** - Ministry of European Integration
- **MMSS** - Ministry of Labour and Social Solidarity
- **MAP** - Ministry of Public Administration
- **MJ** - Ministry of Justice
- **MFP** - Ministry of Public Finance
- **MI** - Ministry of Interior
- **GPTI** - Information Technology Promotion Group
- **SGG** - General Secretariat of the Romanian Government
- **DAIS** - The Department for Institutional and Social Analysis
- **ANRC** - National Agency for Settlements in Communications
- **MIR** - Ministry of Industry and Resources
- **APAPS** - Authority for Privatisation and Management of State Ownership
- **MIP** - Ministry of Public Information
- **MDP** - Ministry of Development and Prognosis
- **INSSE** – National Institute of Statistics
- **OPC** – Office for Consumer protection
- **CNAS** – National Health Insurance Office
- **MSF** – Ministry of Health and of the Family